

## CLAIMS

1. Device for hot dip coating a metal strand (1), especially a steel strip, in which the metal strand (1) is passed vertically through a coating tank (3) that contains the molten coating metal (2) and through a guide channel (4) upstream of the coating tank, with at least two inductors (5) installed on both sides of the metal strand (1) in the area of the guide channel (4) for generating an electromagnetic field in order to keep the coating metal (2) in the coating tank (3) and with at least one sensor (6, 6') for determining the position (s) of the metal strand (1) in the area of the guide channel (4), characterized by the fact that the sensor for determining the position of the metal strand (1) consists of two coils (6, 6'), which are installed, as viewed in the direction of conveyance (R) of the metal strand (1), within the height ( $H_0$ ) of the inductors (5) and between the inductors (5) and the metal strand (1).

2. Device in accordance with Claim 1, characterized by the fact that the coils (6, 6') and the inductors (5) are arranged symmetrically with respect to the center plane (7) of the guide channel (4).

3. Device in accordance with Claim 1 or Claim 2, characterized by the fact that the coils (6, 6') are the same and are designed as wire windings without a core.

4. Device in accordance with Claim 3, characterized by the fact that the coils (6, 6') have one or more windings.

5. Device in accordance with Claim 3 or 4, characterized by the fact that the wire of the coils (6, 6') is made of copper.

6. Device in accordance with any of Claims 3 to 5, characterized by the fact that the windings of the coils have a circular, oval or rectangular shape.

7. Device in accordance with any of Claims 1 to 6, characterized by the fact that the coils (6, 6') are connected to a measuring device (8) for measuring the voltages ( $U_{Ind1}$ ,  $U_{Ind2}$ ) induced in the coils (6, 6').

8. Device in accordance with Claim 7, characterized by the fact that the measuring device (8) is designed for the high-impedance measurement of the voltages ( $U_{Ind1}$ ,  $U_{Ind2}$ ) induced in the coils (6, 6').

9. Device in accordance with Claim 7 or Claim 8, characterized by the fact that the measuring device (8) has a subtractor (9), with which the difference ( $U_{Ind}$ ) of the two voltages ( $U_{Ind1}$ ,  $U_{Ind2}$ ) induced in the coils (6, 6') can be determined.

10. Device in accordance with any of Claims 1 to 9, characterized by the fact that several pairs of coils (6, 6') are installed, as viewed in the direction of conveyance (R) of the metal strand (1), within the height ( $H_0$ ) of the inductors (5) and between the inductors (5) and the metal strand (1).

11. Method for hot dip coating a metal strand (1), especially a steel strip, in which the metal strand (1) is passed vertically through a coating tank (3) that contains the molten coating metal (2) and through a guide channel (4) upstream of the coating tank; in which an electromagnetic field

is generated by at least two inductors (5) installed on both sides of the metal strand (1) in the area of the guide channel (4) in order to keep the coating metal (2) in the coating tank (3); and in which the position (s) of the metal strand (1) in the area of the guide channel (4) is determined with at least one sensor (6, 6'), characterized by the fact that to determine the position of the metal strand (1), two coils (6, 6') are provided, which are installed, as viewed in the direction of conveyance (R) of the metal strand (1), within the height ( $H_0$ ) of the inductors (5) and between the inductors (5) and the metal strand (1), and the voltages ( $U_{Ind1}$ ,  $U_{Ind2}$ ) induced in the coils (6, 6') are measured, the difference between the measured voltages is taken, and the resulting value is used to derive an indicator for the position of the metal strand (1).